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**Experimental study of the Lorentz forces on a small magnet generated by a liquid metal flow** CHRISTIANE HEINICKE, GAUTAM PULUGUNDLA, ANDRÉ TRESS, Institute of Thermodynamics and Fluid Mechanics, Ilmenau University of Technology — Liquid metals are hot and aggressive and therefore inaccessible to conventional flow measurement techniques. However, the determination of local and global flow properties of metal melts and electrolytes is of great industrial interest. Lorentz force velocimetry is a contactless measurement technique, based on the use of magnets, that is able to bridge this gap. While recent studies showed the suitability of this technique for global flow quantities, this project aims at reaching local resolution inside turbulent liquid metal flows. We can show, how the Lorentz force generated by the magnetic field inside the liquid metal depends on the distance of the magnet to the duct, and more importantly, on the flow velocity. Numerical analyses have been performed with a good agreement with the experimental results.

Christiane Heinicke  
Institute of Thermodynamics and Fluid Mechanics,  
Ilmenau University of Technology

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